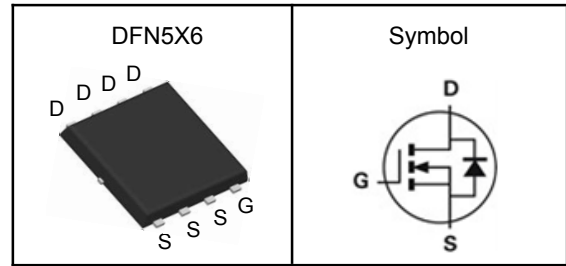


**N-Channel Enhancement Mode MOSFET**
**Features**

- Low  $R_{ds(on)}$  for low conduction loss
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

**Pin Description**

**Applications**

- Power Management in Desktop Computer
- DC/DC Converters

$V_{DSS}$	100	V
$R_{DS(ON)-Max}$	74	m $\Omega$
$I_D$	16	A

**Absolute Maximum Ratings** ( $T_A=25^\circ\text{C}$ , Unless Otherwise Noted)

Symbol	Parameter	N-Channel	Unit
$V_{DSS}$	Drain-Source Voltage	100	V
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	V
$T_J$	Maximum Junction Temperature	-55 to 150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$I_{DM}^{①}$	Pulse Drain Current Tested	32	A
$I_D$	Continuous Drain Current	$T_c=25^\circ\text{C}$	16
		$T_c=100^\circ\text{C}$	10
$P_D$	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	52
		$T_c=100^\circ\text{C}$	21
$E_{AS}^{②}$	Avalanche Energy, Single pulse	$L=0.5\text{mH}$	12

**Thermal Characteristics**

Symbol	Parameter	Rating	Unit
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	45	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance-Junction to Case	2.4	$^\circ\text{C}/\text{W}$

Note ① : Max. current is limited by bonding wire.

Note ② : UIS tested and pulse width are limited by maximum junction temperature  $150^\circ\text{C}$ .

Note ③ : Surface Mounted on  $1\text{in}^2$  FR-4 board with 1oz.

**N-Channel Enhancement Mode MOSFET****Electrical Characteristics** ( $T_J=25^{\circ}\text{C}$ , Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
<b>Static Electrical Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	100	---	---	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=80V, V_{GS}=0V$	---	---	1	$\mu A$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	---	3	V
$I_{GSS}$	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	$\pm 100$	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=3A$	---	74	97	m $\Omega$
		$V_{GS}=5V, I_D=2A$	---	87	122	
<b>Dynamic Characteristics<sup>⑤</sup></b>						
$C_{iss}$	Input Capacitance	$V_{GS}=0V, V_{DS}=50V, \text{Freq.}=1\text{MHz}$	---	335	---	pF
$C_{oss}$	Output Capacitance		---	42	---	
$C_{rss}$	Reverse Transfer Capacitance		---	25	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DS}=50V, V_{GS}=10V, I_D=1A, R_{GS}=6\Omega$	---	6	---	nS
$T_r$	Turn-on Rise Time		---	17	---	
$T_{d(off)}$	Turn-off Delay Time		---	22	---	
$T_f$	Turn-off Fall Time		---	17	---	
$Q_g$	Total Gate Charge	$V_{DS}=50V, V_{GS}=10V, I_D=3A$	---	8.2	---	nC
$Q_{gs}$	Gate-Source Charge		---	1.5	---	
$Q_{gd}$	Gate-Drain Charge		---	2.2	---	
<b>Source-Drain Characteristics</b>						
$V_{SD}^{④}$	Diode Forward Voltage	$I_S=3A, V_{GS}=0V$	---	0.79	1.2	V
$T_{rr}$	Reverse Recovery Time	$I_S=3A, di_F/dt=100A/\mu s$	---	38	---	nS
$Q_{rr}$	Reverse Recovery Charge		---	43	---	nC

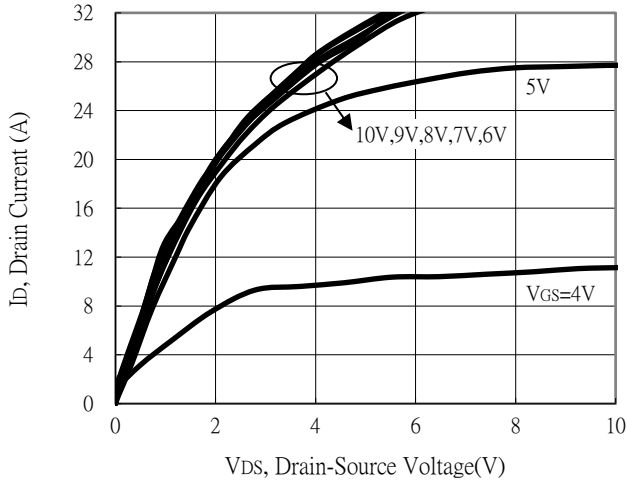
Note ④ : Pulse test (pulse width $\leq 300\mu s$ , duty cycle $\leq 2\%$ ).

Note ⑤ : Guaranteed by design, not subject to production testing.

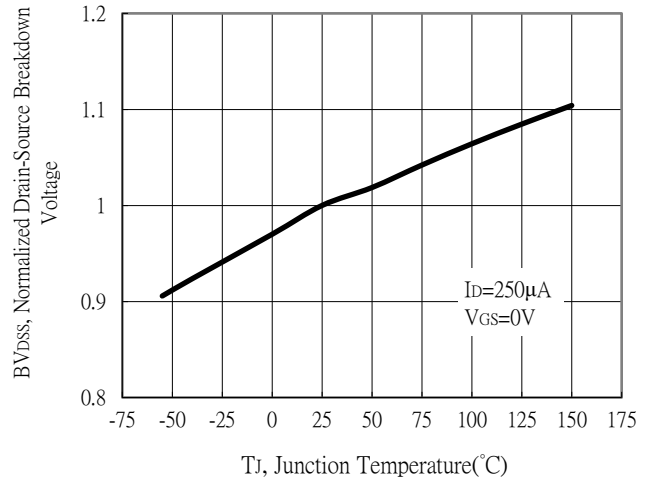
# N-Channel Enhancement Mode MOSFET

## Typical Characteristics

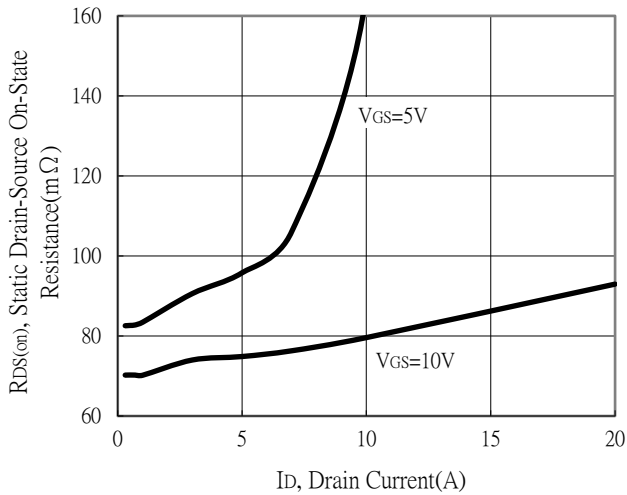
Typical Output Characteristics



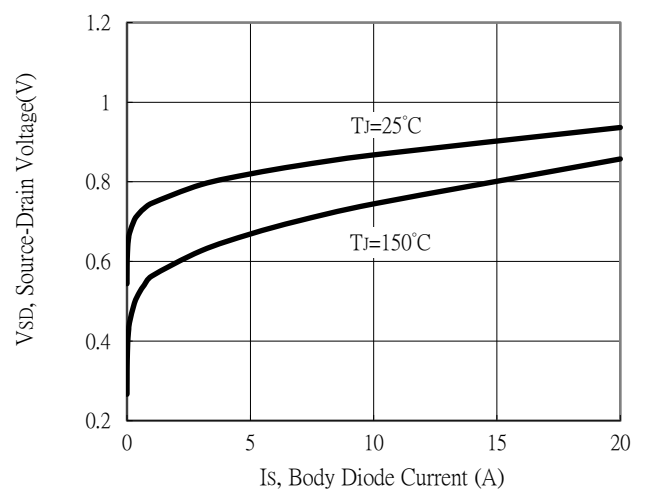
Breakdown Voltage vs Ambient Temperature



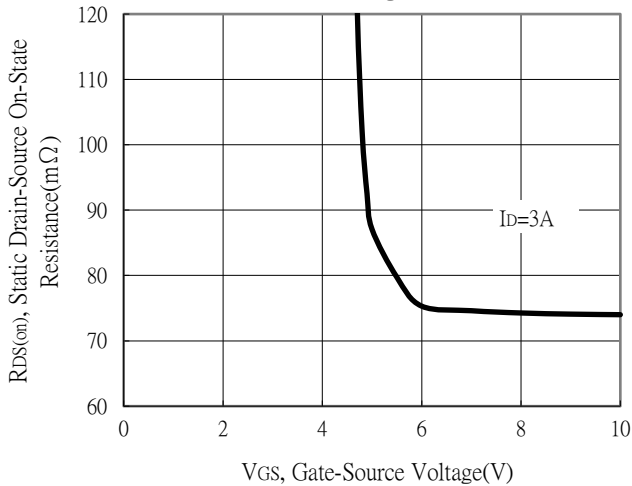
Static Drain-Source On-State resistance vs Drain Current



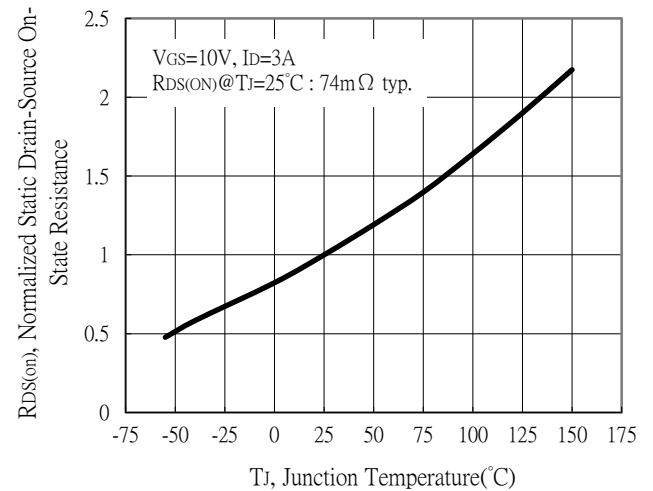
Body Diode Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

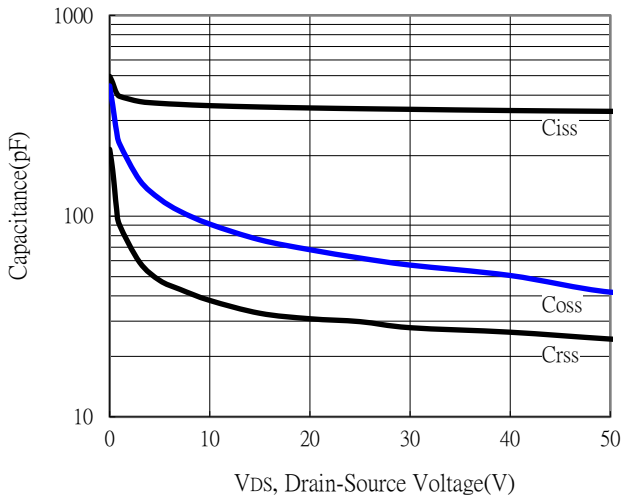


Drain-Source On-State Resistance vs Junction Temperature

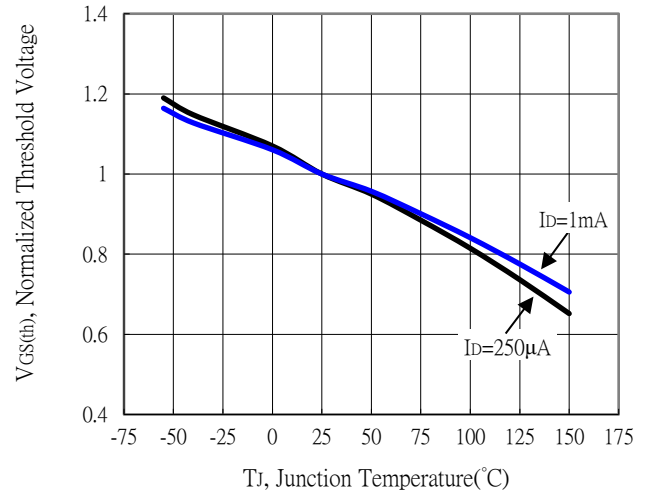


**N-Channel Enhancement Mode MOSFET**

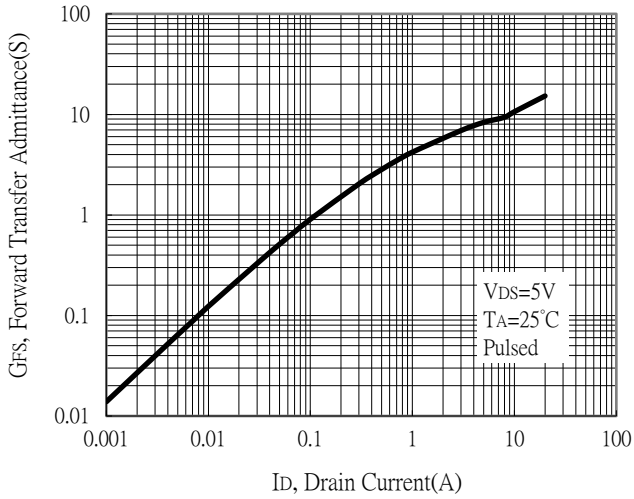
Capacitance vs Drain-to-Source Voltage



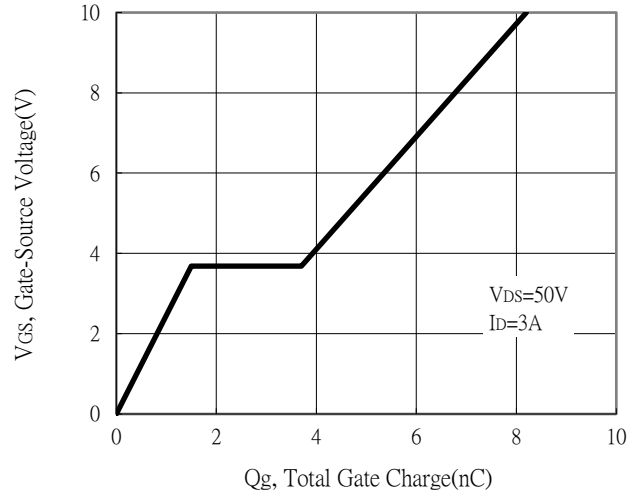
Threshold Voltage vs Junction Temperature



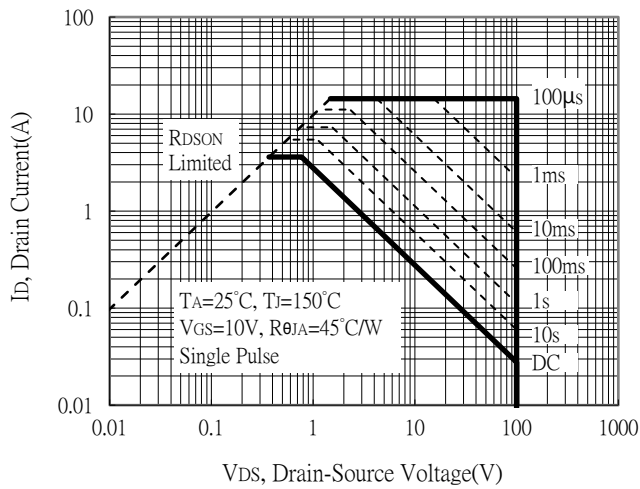
Forward Transfer Admittance vs Drain Current



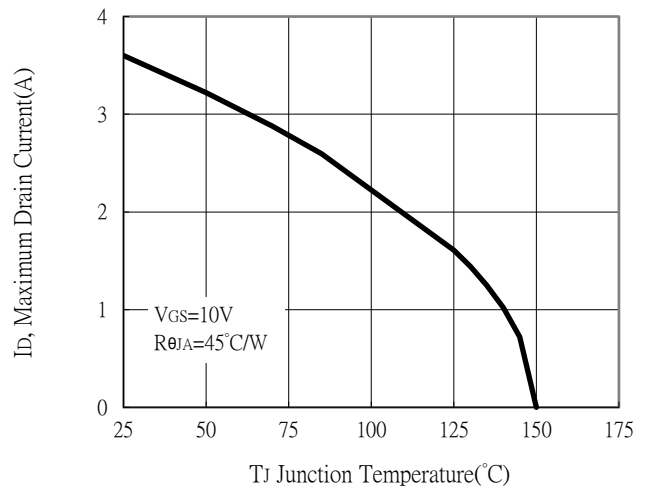
Gate Charge Characteristics

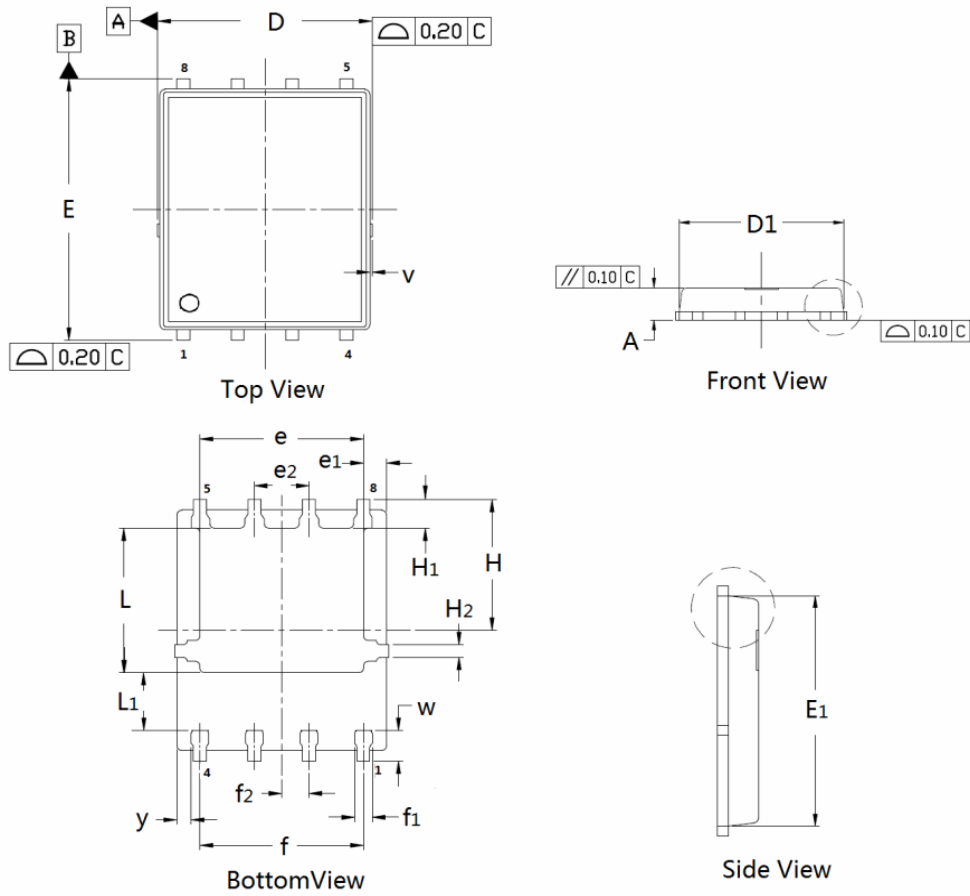


Maximum Safe Operating Area



Maximum Drain Current vs Junction Temperature



**N-Channel Enhancement Mode MOSFET**
**DFN5×6 Package Outline Data**

**DIMENSIONS ( unit : mm )**

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.02	1.10	D	4.90	4.98	5.10
D <sub>1</sub>	4.80	4.89	5.10	E	5.90	6.11	6.25
E <sub>1</sub>	5.65	5.74	5.95	e	3.72	3.80	3.92
e <sub>1</sub>	--	0.5	--	e <sub>2</sub>	--	1.	--
f	--	3.8	--	f <sub>1</sub>	0.31	0.37	0.51
f <sub>2</sub>	--	0.6	--	H	--	3.	--
H <sub>1</sub>	0.59	0.63	0.79	H <sub>2</sub>	0.26	0.28	0.32
L	3.35	3.45	3.65	L <sub>1</sub>	--	1.	--
v	--	0.1	--	w	0.64	0.68	0.84
y	--	0.3	--		--		--